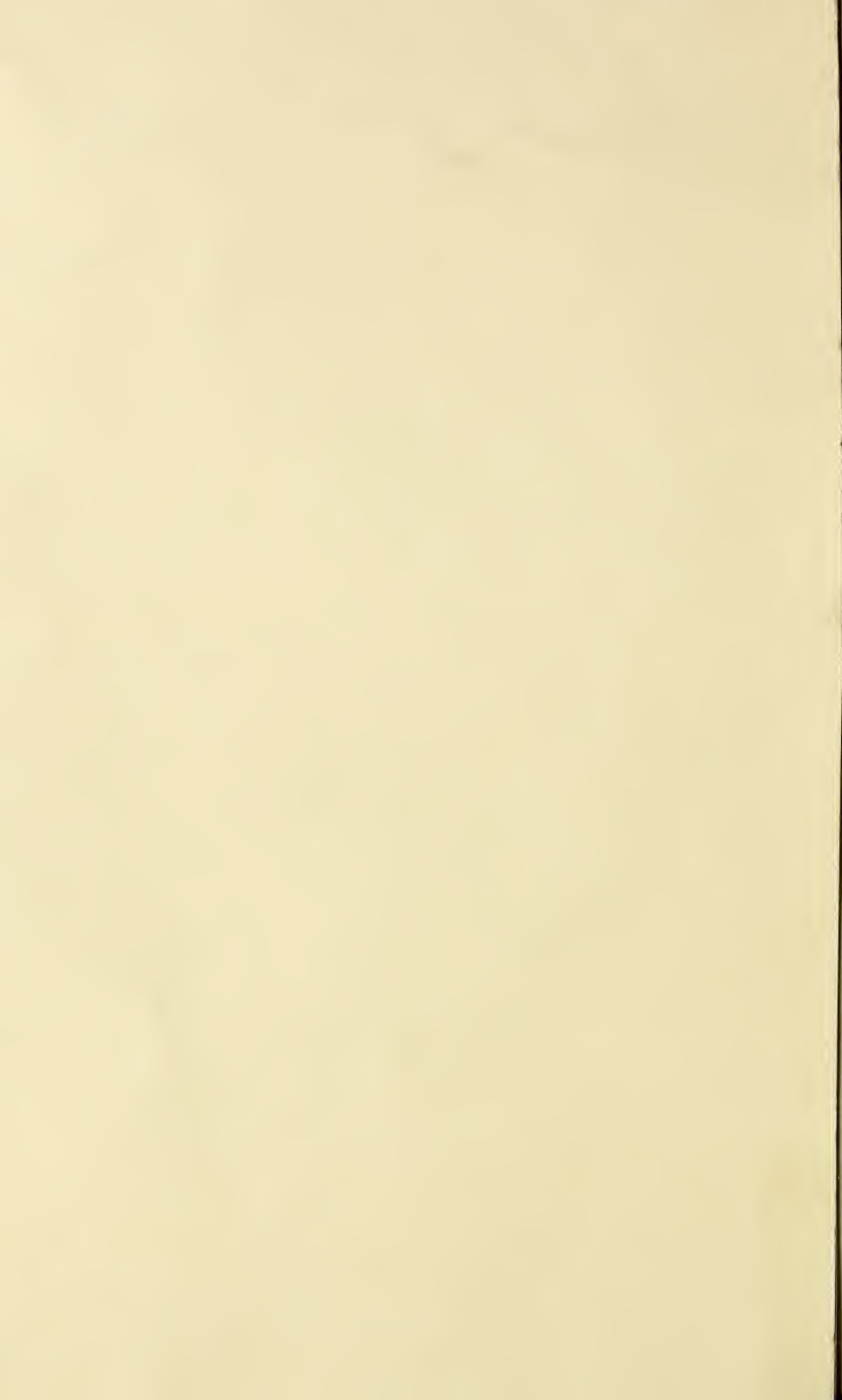


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EDITORIAL CHAT.

The University appropriation bill is still in the hands of the senate as we go to press. It passed the house some time ago with a vote of 81 to 6 but has been delayed in the senate, owing to several misunderstandings among the senators which were not favorable and the friends of the measure did not wish for it to come to a vote until a better understanding was reached. Its passage is now practically assured, however, and although it does not call for anything like the amount the University should have, as a mill tax appropriation it was the best that could be done. The bill calls for 15 hundredths of a mill, the same as the University has received for the past two years. There was a determined fight by the other colleges to prevent its passage although not such an organized effort as was made at the last legislature. On the whole, conditions seem to be somewhat more favorable for the University and it is hoped that this matter will soon adjust itself and the University receive its just support. Dr. Thompson has been un-

tiring in his efforts to overcome the obstacles and to him will be due the credit for the victory. A new bill for special appropriations will be introduced as soon as this one is passed, asking support for some of the more important and deserving phases of University work. In this the agricultural college is especially interested and it is hoped that the fight for this new bill will not be a losing one. The College of Agriculture should come in for its share in this new asking and if the agriculturists of the state will assert their rights the college will get the support it so much needs, and the University as a whole will be benefitted as well. Our alumni and ex-students should appreciate the power they can wield in this matter.

At the Green county farmers institute held at Springfield, January 23, the agricultural club organized by Professor Graham of Springfield township, made an exhibit and shared in the program. A large number of corn samples were displayed by the various members, together with collections of weed seeds, plants, woods, etc., which had resulted from the work of the members. This exhibit in the first place was excellent, but the most remarkable feature of the meeting was the intense interest shown by members of the club. A very large number of children were present and several appeared on the program. Samples of the papers presented are given elsewhere in this issue and an idea of the possibilities of this work can be gained by noticing the character and nature of these articles. The manner in which the boys and girls have taken hold of the work and the interest they have shown cannot but impress one with its possibilities. There is nothing

that promises more for the agricultural college or for the agricultural development of the state at present than this method of reaching the young, and it seems plain that the duty of the College of Agriculture in this respect is becoming more clearly defined. The recent division of the work of the Student Union giving the college control of this extension feature, makes decided and aggressive action imperative if she does her whole duty.

It is therefore gratifying to know that the college has come to realize the importance of the work and the opportunity offered, so that a determined effort will undoubtedly be made to establish this work just as soon as circumstances will permit. A second bulletin on the subject of clubs in rural schools is already being prepared and will soon be issued. It will suggest plans for the establishment of such organizations in the schools of the state and endeavor to outline methods for the successful carrying out of this work. The Agricultural College is alive to the demands; it is anxious to seize its opportunity; the only difficulty that now confronts the movement is the lack of proper financial support. It is hoped, however, that sufficient aid may be obtained to start the work at least, and that abundance will come in time.

It is gratifying to the agriculturists of Ohio and all those interested in the good roads movement to note the progress that is being made this year, especially of a legislative nature. And while at the present writing no definite action has been taken in either the state or national legislature the bills that have been introduced and the interest that is being shown indicate that we are working in the right direction. Some systematic method of road management both for the state and nation is necessary if we are to reach our ideals in road

construction and maintenance. The Brownlow bill in congress and the Wertz bill in the Ohio legislature are both to the point in this respect, and while there may be features of each that will not prove entirely satisfactory, their passage will mean a great stride in the right direction. They should be supported.

Meeting of Ohio Dairymen's Association.

The tenth annual meeting of the Ohio Dairymen's Association occupied the greater part of three days January 27-29.

It was held mainly in Townshend Hall which comfortably housed the exhibits and furnished a convenient place for the sessions of the convention.

Those present at ten o'clock on Wednesday, January 27, attended the weekly convocation, after which the first session was opened, and C. B. Lane, assistant chief of Dairy Division, U. S. Dept. of Agriculture, addressed the association, his subject being "The Production of Milk for Retail Trade."

The afternoon was given up to inspecting the exhibits of dairy supplies and machinery. These had been placed in the spacious room at the north end of the hall, usually filled with agricultural machinery.

The evening session convened in the university chapel where president L. P. Bailey delivered his annual address. It was brief and to the point. Before hearing the next address the meeting adjourned to Townshend Hall because of the more convenient facilities for using a stereopticon. The illustrated lecture was given by C. B. Lane in one of the lecture rooms. His subject, "Yield and Comparative Value of Six Months Food for a Dairy Herd," was well illustrated with fine views which helped to impress the advantages and possibilities

of the soiling system, on those present. He answered numerous questions at the close.

January 28. The morning session opened in Townshend Hall and after a partial report by the secretary and treasurer, D. A. Crowner, the president suggested an experience meeting which was participated in by several members and questions were answered by C. B. Lane and Professor C. D. Smith, Director of Michigan Agricultural Experiment Station.

Horace Ankeny, State Dairy and Food Commissioner of Ohio, was introduced and made an address which was well received, and in which he asked the support of the association in discharge of his duties as commissioner.

Hon. Levi Wells, Dairy Inspector of U. S. Department of Agriculture, next spoke on the subject, "Renovated Butter as a Factor in Ohio Dairying." He explained what it is and how placed on the market.

Professor Alfred Vivian, of O. S. U., next spoke on "Scale Pepsin in Cheese Making." As an object lesson, a cheese made with the use of pepsin was sampled by the audience, and B. B. Herrick, the manufacturer of it, expressed his satisfaction with the use of the scale pepsin in actual practice.

Professor C. D. Smith on "Soil and Fertility Side of the Dairy Business" carried everything before him and provoked considerable questioning. He was as full of wit as he was of sound sense, and no one could get the better of him, even in a joke.

The afternoon session was called at four o'clock when Professor Smith was again listened to with interest while he depicted "Fact and Fancy in Dairy Form." His frequent challenges for questions or discussion seemed admir-

ably suited to the spirit of the meeting, and his lecture was much appreciated.

Resolutions were read and adopted after some warm discussion. These embodied the following points:

1. Thanking O. S. U. representatives for their courtesy and assistance.

2. Recommending adequate state appropriations for O. S. U. for

(a) A better dairy laboratory and improved opportunity for research work therein.

(b) An up-to-date dairy barn.

(c) Typical representatives of the leading breeds of dairy cattle.

(d) A larger force of dairy instructors for the University and throughout the state.

3. Urging the continuance and extension of local dairy institutes, and asking for an appropriation of \$2000 per annum for this work.

4. An appropriation of \$10,000 for a dairy exhibit at St. Louis.

5. Endorsing bill No. 8678 House of Representatives of U. S. Congress.

6. Expressing approval of Senate bill No. 18, Ohio General Assembly.

7. Urging immediate legislation to regulate the sale of renovated butter.

8. Favoring amendments to present milk laws.

9. Favoring the establishment of a higher standard for full cream cheese.

10. Commending the present Dairy and Food commissioner for his efficient and honest administration, and recommending that a state laboratory be established and a chemist hired under his jurisdiction.

Thursday evening was given up to a banquet at the Great Southern Hotel, to which one hundred and forty-one persons sat down at 8 p. m. They had a large time, to use the phrase of the chief promoter of the occasion, and every evidence of good felling was man-

ifested on all sides. Dr. W. O. Thompson presided as toastmaster and the following persons responded to toasts: Prof. C. D. Smith, F. A. Derthick, Horace Ankeny, Representative Craft, Senator Harris, Prof. H. C. Price, C. B. Lane and John Nickles.

Business was first disposed of at the Friday morning session. The following officers were elected for the ensuing year: president, Jno. Nickles, Cleveland; vice-president, Eldon B. Smith, Columbus; secretary and treasurer, D. A. Crowner, West Jefferson. Officers of the Butter, Milk and Cheese Divisions and the Board of Directors were also elected.

The newly elected president responded to a call for a short speech which "had the true ring" to quote the words of the retiring officer. A vote of thanks was extended to L. P. Bailey for his faithful service as president during past years.

Mr. E. Sudendorf then spoke of the Dairy Exhibit at the World's Fair and urged Ohio dairymen to take part in it. This was followed by plain talk about the prospects for such an exhibit.

Professor C. D. Smith gave an interesting paper on "The Essentials in the Production of good Milk."

At 2:00 p. m. Professor G. L. McKay, of Iowa State College, lectured on "Creamery Management." After this he gave a brief demonstration and answered questions on butter scoring. Professor McKay acted as judge of the exhibits of dairy products and said that he thought there had been an improvement of 30 per cent. in the quality of the products over those of last year. The awards were then announced and it is quite gratifying to students of O. S. U. to know that the sweepstakes went to a former student of the Dairy School, W. C. Barrett. He was called upon to tell how he made the butter which

scored 97 1-2 points. His methods were commended by Prof. McKay.

The convention then posed outside for a photograph.

This annual meeting was the most successful in the history of the association and evidenced considerable growth. The membership now numbers about one hundred and fifty, an increase of nearly 50 per cent for the past year.

There were forty-five exhibits of dairy products and the average score of these was high. E. R. M.

The Chemical Building Burns.

The Chemical Building was completely destroyed by fire on the evening of February 19. Practically nothing was saved. The total loss is estimated at about \$100,000 besides the destruction of records, data and books which can never be replaced. The fire is supposed to have originated from a Bunsen burner in a hood, and the building was a mass of flames before the fire department could get a stream of water on the fire.

Correspondence Schools.

On every hand as we go hustling through this busy world we are brought face to face with a very neat and attractive invitation to learn by correspondence anything almost that English speaking people have ever heard of or that ingenious minds can invent. Some one has said that "knowledge is power;" admitting the statement it is fortunate for this and coming questions that there was no limitation placed on how this power was to be obtained.

There is no question as to the ability of some people to learn and learn well the underlying principles of many of our sciences without the aid of an instructor. But is it reasonable to believe that

all who have not the time or means to obtain a college education can reap sufficient benefit from any course they may pursue to pay them? We are all only too familiar with some well meaning brother or sister whose untiring efforts have not apparently been rewarded with that crown of glory we hear so much about to answer this question in the affirmative.

Every teacher, no matter of what class or standing, knows that it is often necessary to indulge in a series of fires and cross fires to make clear a very important point that can be placed on paper so as to be very clear and easy to the trained eye of the writer, this I maintain is where the correspondence school as it stands today is wanting; that is, in its ability to draw the student so that he may understand every point. It is very easy to say that $X=1$ but to prove it to Mr. A who has, perhaps, sawed wood all his life and relied on the county paper for his information, is quite another thing. They say their book and lessons are so simple that a child can understand them. That is an excellent point; but, we must not forget that Mr. A is a *man* with his own way and does not see things as a child; and then there is that element of personal power or touch we hear of occasionally which has never and can never be transferred to paper by even the shrewdest wielders of the pen.

Not for one moment would I intimate that the promoters of our correspondence schools are anything but men of the highest moral character and well meaning in their aims or that they will not do all in their power to make the work a success, but the trouble is more apt to be at the other end of the line. The

correspondence school is recognized as a means of carrying on home study and as such, the question of time, application and means for carrying on successful work, all of which are very important and over which the instructor has little, if any, control, are often very forcibly brought to the attention of the student after he has enrolled. However with some schools and some pupils all of these questions are more easily settled. For example, in agricultural work the student is brought in contact daily with the subject he is studying and the points presented in his course of reading, if assigned systematically, will be illustrated to him continually as he performs his regular farm work. In the feed lot he can make practical use of his lesson on feeding. As he plows his ground and cultivates his crops he can easily make a study of the various kinds of soils, of soil moisture and plant growth. All this work he can carry on, not in his spare moments, but while he is at work; but let us not overlook the fact that, although we are working in nature's own laboratory and that much good can be accomplished, there will still be lacking that thoroughness, which counts for so much in these days of sharp competition, and which can only be attained by careful and systematic study under the direction of men who have received special training in their chosen lines of work.

F. RUBINS.

The Wertz Road Bill.

The Wertz road bill does not provide for an experiment: It substantially follows the "State Aid" road laws of New York, Pennsylvania and New Jersey, where it has been a great success. It benefits farmers, manufacturers, busi-

ness men and every class in the State of Ohio.

It provides that in roadways constructed of macadam, telford, gravel, or other suitable material, the state shall pay one-half the cost, the county one-fourth, the township in which the road is constructed one-fourth.

It provides that the state make the plans for the improvement and have the construction made under the supervision of the county engineer, by selling the work to the lowest bidder, or by permitting the county or township to take the contract. Material available and close at hand is considered first.

The state by this bill gives each county \$3,000 for 1905 on condition that the county raises a similar amount. It is not compulsory for any county to accept this amount. The \$3,000 appropriated by the state works no hardship on the land owners or taxpayers of any county, as this money is not raised by a tax on real estate or on personal property, inasmuch as the state raises this money by taxes on corporations, excise taxes, etc. It works no injustice to the people in those counties where permanent highways have been constructed, as this appropriation is available for rebuilding, reconstructing, etc., of such roads. It creates a state engineer, whose business will be to promote and look after the construction of roads in Ohio. It is the intention of the bill to create the machinery necessary to build good roads, get the plans made so that actual construction can begin in 1905. It is believed that the wisdom of this measure will be made so manifest by the time the next session of the legislature convenes that provision will be made for continuing the good work until from this small beginning there shall grow year after year a permanent road system in which every road in Ohio is good for travel

twelve months in the year; and instead of having roads that are a disgrace to our civilization, it will place Ohio in the first rank of states with permanent roadways.

The bill is a step toward systematic road improvement in Ohio and deserves support.

Some Results of Agricultural Club Work in Rural Schools.

(The two following papers were presented by their authors before the Clarke county farmers' institute, held at Springfield in January. Both these boys are members of the Agricultural Club organized by Supt. Graham in Springfield township and the papers are the direct result of the inspiration and knowledge received from this club work. The boys were furnished some literature on these subjects in the regular club work but the preparation of the papers was done entirely by them. Both boys are under fifteen years and for boys of their age the papers are remarkable. For this reason and for the reason that the possibilities of this club work are so well illustrated it was thought very desirable that the papers should be published. Eds.)

Corn.

When the white man came to this country he found the Indian using corn; for this reason in addition to its name, maize is called Indian corn. Before that time the civilized world did not know there was such a crop. Indian corn or maize belongs to the family of grasses. This can easily be seen by a close observation of the leaves and stalk. It will be found that the veins run parallel and that the stalk is pointed like that of grasses.

Corn is king of the cereals, and the most important crop of American agri-

culture. It is the backbone of farming in this country. Live stock of every kind are fed upon rations into which it largely enters and it feeds more human beings than any other grain, except perhaps rice. It grows in almost every section of America, but is grown more extensively in Illinois, Missouri, Kansas, Nebraska and Iowa.

A soil rich in both decaying animal and vegetable matter, loose, warm and moist, but not wet, will produce a better crop of corn than any other. Corn soil should always be well tilled and cultivated. The proper time to begin the cultivation of corn is before it is planted. Plow deeply. A shallow worn-out soil should not be used for corn but for cow peas. After thorough and deep plowing the harrow, either the disk or spring-tooth, should be used to destroy all clods and leave the surface mellow and fine. The best results will be obtained by turning under a clover sod that has been manured from the savings of the barnyard. It is very little a locomotive can do without steam, because without it the wheels will not turn. The same is true with the clover crop to the corn crop, because the clover is constantly pumping the ground full of nitrogen, the very element which will grow the best corn. Some farmers take the idea into their heads that without commercial or artificial fertilizers they can not raise corn. This, however, is a very wrong thought indeed for artificial fertilizers are often very expensive and do more harm to the land than they do good. The proper way to use them, if used at all, is to test them. A little study and experimenting on the farmer's part will soon enable him to find out the amount of fertilizer that is best suited to his land.

Another important point in corn culture is the selecting of the seed. By

judicious and persistent selection, made in the field before the crop is fully matured, corn can be improved to an almost unlimited extent in size and early maturity. Gather only ears from the most productive plants, and save only the largest and most perfect kernels. In "scaling" any variety of corn it is customary to assume that the perfect ear is one nearly or quite uniformly cylindrical throughout its entire length and having the tip and butt well covered with kernels. The kernels also should be wedge shaped and run in uniform rows. Seed corn shelled several weeks before planting is likely to have the vitality of the germ injured. In some instances such seed has not grown when planted, although ears of the same seed shelled immediately before planting produced a perfect stand.

An Illinois seed-corn breeder's association was established in June, 1900, by the corn breeders of Illinois, for the purpose of furnishing well-bred seed to the corn growers and to prevent the loss from poor seed sent out by seed dealers. The breeding of the corn is done by a chemical process in which the kernels are separated containing a greater amount of the ingredients such as, gluten, which is worth about one cent a pound, starch, which is worth about one and one-half cents a pound, and oil which is worth about five cents a pound. The kernels are taken containing a greater amount of each of the three, and planted separately. The kernels from their ears are also planted and so on until we get a kernel containing a great amount of each. The most economical method of planting is by means of the horse planter which, according to its adjustment, plants regularly in hills or in drills.

When the corn plants are from half an inch to an inch high the harrow should be used. A little work at this stage will

save many days of labor during the rest of the season. Corn is a crop that needs constant cultivation and during the growing season the soil should be stirred at least four times. Deep culture of corn is not advisable. The roots, in their early stages of growth, are shallow feeders and spread all over the ground only a few inches below the surface. The cultivation that destroys or disturbs the roots injures the plant and lessens the yield. In many parts of the country the corn stalks are left standing in the field or burned. This is a great mistake for the stalks are worth a great deal for feeding horses, cattle and sheep. The stalks ought always be saved by the use of the shredder and husker. Corn after being matured and cut ought to be put in shocks and left thus, until dry enough to run through the husker and shredder. This is a machine that husks the corn and at the same time shreds the fodder into a food that is both nutritious and palatable to stock. The only reason that so much good food is being left to decay in the field is because so many people are ignorant of the feeding value of this stover.

GLENN G. HAYES.

The Relation of Birds to Man.

The birds we see around us every day seem little and unimportant, yet the work they do is of great value to man.

The foods of birds differ. Some birds live on an animal diet and some on a vegetable diet and some on both vegetable and animal. The greatest number live on the latter class.

Birds travel according to the variety and quantity of their food. When winter approaches, birds depending largely on the insects of the air and worms of the unfrozen ground for their food, migrate to the warmer climate of the south al-

though some birds, such as the wood-pecker or "red-head," as he is commonly called, and snow birds stay here. The food of the former is as easily obtained in winter as summer, for it consists chiefly of worms and insects found beneath the bark of trees. The wood-pecker saves many trees by keeping them almost free from damaging worms and insects. In some places wood-peckers used to be killed just for the fun of shooting at them but that was found to be unwise, and now they are protected by the law. Wood-peckers are often driven from orchards because the people think they eat too much fruit, but the worms they eat more than pays for the fruit they take. They should be induced to stay around orchards as much as possible.

Some birds make things cheerful by their beautiful songs. These songs are missed in winter because the song birds go to a warmer climate.

Only a small portion of the birds hatched ever reach maturity because of severe storms or the parent bird being killed. But the young birds and the parent birds need a great deal of easily digested food, such as worms and insects.

Swallows are valuable birds for catching insects of the air. These insects are a torment to man and beast. These birds should be led to stay around barns and buildings by putting up boxes in which they may build their nests.

The investigation of the contents of stomachs of many birds show that some birds eat seeds of grain and weeds. Not much cultivated grain is eaten, and a great many seeds of noxious weeds are thus destroyed.

The United States Department of Agriculture has examined the contents of the stomachs of several thousand individual birds and has found on an aver-

age of about 75 per cent. of the contents to be of worms and insects injurious to cultivated plants.

The meadow-lark lives chiefly on worms and insects found on the ground, among them being the famous grub commonly called "cut worm" which the farmers know plays such havoc with the young corn.

The quail is one of the most useful birds to man as an insect destroyer, but it is slaughtered to such an extent during the hunting season that not enough are left to do the good that otherwise they would.

The house wren is a cheerful bird to have around the house and its food consists almost entirely of insects. It will build its nest and stay around dwellings when not bothered by cats and dogs, which are birds worst enemies.

Robins and blue birds are useful for catching insects and grass hoppers..

Taking all in all, birds are the cheapest things to keep trees and plants free from damaging worms and insects.

"God protect the little birds

Which sing around our door,

That they may help the farmer

To prosper all the more."

ELLIOT GOODFELLOW.

Extension of Agricultural Education.

Agriculture is no longer an occupation only, it has become a profession—a profession which requires men of the most enlightened minds. The problem of supplying the many millions of people with the necessities of life which the farmer alone produces is no longer one of little moment. The time is not far distant when just what the ordinary unthinking man may produce upon his farm will not be sufficient. Formerly little thought was given to this question but now it seems that many are turning

their attention in this direction and the cry is heard throughout the land that there is need of more scientific men to guide the management of our farms in order that they may produce all that they are capable of producing and that the life as it were of our farm land may no longer be drained out as has already been the case in so many instances. And now comes the question, how are we to get the great mass of our rural population educated up to the point where they can properly engineer their farms?

It is true we have our agricultural colleges which are doing an immense amount of good in this line, but only a small portion of the farmer boys are allowed the privilege of attending college, and these, as yet, are to a great extent not allowed to go back to the farm, for they are required to fill the positions in colleges and experiment stations in order to carry on the work there. The agricultural college thus does not reach the masses.

But let us not despair. Let us turn to the most natural means, our old standby, the country school.

The legislature of Michigan seems to have recognized the opportunity which the rural school provides for the dissemination of agricultural learning, and in the ten normal schools for rural teachers which were provided for by the last legislature, elementary agriculture is required in both semesters of the one-year course and in the first year of the two-year course, and is elective in the second year. Applicants for admission to either of the courses must subscribe to a declaration that it is their purpose to engage in teaching in the rural schools or in the lower grades of the graded schools of the state.

This seems to be the most plausible method of reaching the rural districts.

It brings it right to the homes, as it were, and prepares the way for the application of the principles and methods which are sent out and distributed by experiment stations and college bulletins and by agricultural papers, but which are practically of no use to those who have not had the primary elements of agriculture.

The introduction of the elements of agriculture into the rural schools to be taught by teachers trained at the normal schools by competent instructors or the implanting of agricultural courses in our township high schools, will doubtless supply the missing link between the farmer of the rural district and the agricultural college and experiment station.

J. C. W.

Training of Institute Speakers.

The plan of holding special training schools or meetings for State Farmers' Institute speakers which has lately been adopted in a few instances, notably New York and Wisconsin, is one which is in strict accord with the rapid advancement of agriculture and the spread of agricultural teaching. The meeting held at Geneva, New York, was the first notable effort in this direction and the success of the movement is almost assured by the results of the gathering. A similar convention at Wisconsin Agricultural College, during the week ending December 12, was also eminently successful and with this beginning there will undoubtedly be a rapid development in this line of work. Our farmers' institutes are of inestimable value to the farmers of the state, a value often unappreciated, and such systematic attempts to train the institute workers should be in every way encouraged. The farming class is in many respects a peculiar one to deal with in the matter of public meetings and the

men who make a business of attending these gatherings as imparters of knowledge should study their methods and perfect plans just as carefully as does the college instructor in dealing with his students. Agriculture as a science is comparatively new and it takes time to reduce any science to a pedagogical basis. Our institute speakers should, therefore, be led to study their people, their subject and the method of its presentation. Few are more ready to criticize than the average farmer, especially when the subject considered is one in which he is himself working. These criticisms are not usually just but the effect on the farmer himself is just the same as if they were, and is rarely productive of good.

A little time given each year by the members of the institute staff in discussing these topics among themselves, in studying ways and means, in considering the pedagogical side of institute work, will mean much to the speakers themselves and infinitely more to their audiences. The inspiration derived and the study of conditions and people which such meetings will foster, will mean much to the future of our institutes.

New Horticultural Club.

A new organization has been perfected among the students and faculty of the university. It is known as the Horticultural Club and its declared purpose is "to promote a greater interest in the subject of horticulture." It has been placed on a firm footing by adopting a constitution and by-laws. Its officers are as follows: president, E. D. Coberly, vice-president, J. H. Beattie, secretary-treasurer, E. R. Minns.

The first regular meeting was held on Friday, February 12, in Horticultural

Hall. The program consisted of a brief sketch of John Bartram by Coberly, items of horticultural news, by Beattie, observations by members of the club, and a talk on Stocks for Nursery Trees, by Professor H. C. Price. There was a very encouraging attendance at this meeting and it is hoped that the club may be of no small benefit to all students interested in horticulture.

E. R. MINNS.

Support for the Animal Husbandry Work at the University.

In 1902 a professorship of Animal Husbandry was created, and special arrangements were made for the teaching of this subject in the Ohio State University. During the past fall and this winter, demands have been made by many organizations of farmers and by the University authorities for much larger appropriations for this work than any the legislature of the state has heretofore granted. The question must necessarily arise, as to the grounds on which these demands can be reasonably made.

Ohio has been, and always will be, one of the great farming states of the country. Agriculture is sure to be one of her leading industries. All successful agriculture is dependent on the live stock industry. To restore lost fertility and maintain that already existing the raw material grown on the farm must be consumed there by live stock, thereby leaving a large percentage of the fertility taken from the soil by the crop to be returned to it.

To compete with the great stock-growing states of the West, we must go into specialized forms of animal husbandry. We cannot produce beef, or pork, or wool, on our high-priced lands

at the prices the western man can afford to produce these commodities. Hence we must turn to some forms of industry in which there is a more remunerative field. Of these, there are two that are especially suited to the conditions found in Ohio. These are the production of dairy products and the breeding of improved live stock.

The former merges into the latter, since the profits from the dairy are vastly increased by improved breeds of dairy cattle. The diversified soil, surface and market conditions of the state make it adapted to a wide range of varieties of animals. The wrinkly Merino, the Delaine, the middle wool and the long wool sheep all can be accommodated on Ohio soil with congenial environments. So, the beef animal, the dual purpose and the dairy cow, the draft horse, the coacher and the American trotter may all find surroundings suited to their best development and use.

Hence, Ohio is pre-eminently fitted by her natural and artificial conditions to become the great nursery ground of pure-bred live stock of the United States. As England is to the live stock world, so Ohio is fitted to be, and should be, to America.

Many stockmen of this state have ever been awake to its possibilities in this line. Nearly one hundred years ago the Merino sheep was introduced, and, being naturally adapted to the hills of the southeastern counties, soon made that section famous for its fine wools. Later, the Shorthorn came into the fertile corn belt of the central and western counties, and Ohio Shorthorns have ever since held a high place in the show rings of the country. A breed of hogs that would meet the requirements of the enterprising stockman was needed, and by some years of careful crossing and selection, the most popular hog of America, the

Poland China, was evolved. Space forbids more than mere mention of the work of Ohio breeders in producing the American trotter, or of the development of the Polled Durham, a distinctly Ohio breed, or the great work done in introducing and improving the numerous other breeds of live stock. Suffice to say that almost every breed of any importance whatever has representatives in the Buckeye State, and no state has played a more important part in the introduction and development of high class live stock than Ohio.

Why, then, with all these successes this proposed new line of work? Simply this. Newer states of the West have entered the field of pure-bred live stock production and are rapidly gaining upon, and will soon surpass us unless we use every effort to develop this important industry. Ohio is not keeping pace with them, and will lose her prestige unless the stockmen of the state bestir themselves. The scrub is ruler in a thousand of their fertile pastures. What is the best course to pursue? We say, educate the young men of the state to breed and feed better than their fathers, and to preach the gospel of improved blood. It is the most practical and thorough way of advancing this work, and if supported as it should be will enable us to gain a position in the live stock world that will be of honor and profit to our agricultural interests. A young breeder whose stock won high class prizes at the best shows of 1903 said to the writer: "When I was in college, in speaking of a noted herd of cattle to the class of which I was a member, Professor —— said: 'You young men can produce just as good stock as this if you will give it your attention.' I thought of this, and after leaving college began improving and building up my herd." Such results as he has attained can be reached by every

other intelligent well trained man, and there is no place equal to the well equipped agricultural college to get this training. If every community had such a man in it, what magnificent results might be reasonably expected in a few years.

To educate young men in this line of work requires a great deal of money. Dr. Thompson said before the State Farmers' Institute, that agricultural education is more costly than any other. He might have added, that the most expensive course of agricultural study is animal husbandry. This is because of the great cost of laboratory equipment. A single high class animal costs enough to entirely equip a laboratory in many other branches of study, yet many such animals are needed to carry on this work properly. The equipment in this line at Ohio State University is a very meager one. The state should provide means for furnishing it with the very best of live stock, barns, etc., for the development of this work. It is of vital importance to our agricultural interests, hence to the entire state. As we said in the outset, Ohio must always be an agricultural state. Then why not do everything possible to develop her agricultural interests?

A. S. NEALE.

Government Appointments for Seniors.

Four of the Senior class in the College of Agriculture passed the civil service examination for work in the Bureau of Soils, U. S. Department of Agriculture, and have received their appointments to take effect April 1. The names of the men are Otto Eckman, C. C. Hatfield, E. L. Zehring, and T. L. Wheeler. The position pays quite well, but is especially valuable for experience. The fact that the appointment takes ef-

fect before the close of the school year will prevent some of the men from completing their work this year. All except Mr. Hatfield have accepted the appointments.

It is especially complimentary to the College that all four men should receive appointments, since this includes the entire number who took the examination from this institution.

Diseases of Forest Trees.

In dealing with the various phases of forestry, foresters must always take into account that class of plants known to botanists as fungi. The fungi include all those plants popularly called toadstools, mushrooms, puffballs, moulds, mildew, black knot, rusts, smuts, leaf spots, etc. These fungi have no chlorophyll and are therefore unable to get their food directly from the soil, but get it already prepared from other plants.

Many fungi grow on, or in living plants. The mycelium or threadlike body of the fungus penetrates the tissue of the plant, making its way in the spaces between the cells. All fungi which attack living plants in this way are called parasites.

Another class of fungi get their food entirely from dead or decaying organic matter. They are able to break down the cells of dead wood, and while these fungi are very useful in nature, since they prevent the ground from being encumbered with a huge mass of debris, they are a constant menace to the forester. If he leaves a log lying on the ground any length of time they promptly attack it and make it useless for any economic purpose. These fungi are known as saprophytes.

Even before the seed which is to grow into the tree germinates it may be at-

tacked by the moulds and several other fungi which so completely exhaust the seed that it is unable to push the young tree above the ground.

When the young trees are above the ground they are attacked by a parasitic fungus which causes the leaves and young shoots to wilt and turn brown and finally kills the seedling. This is known as the damping off disease. It is especially destructive to young beech trees.

As the tree grows older it is no longer possible for the damping off disease to kill it, but hosts of other fungi attack the roots and leaves, appropriating for their own use the plant food which should have gone toward strengthening the tree. Among these may be mentioned a few which are familiar to everyone. The mildews cover the leaves with a thick network of fine white threads, and scattered among these threads are numerous small black bodies. These bodies contain the spores, by means of which the fungus reproduces itself. The leaf spots form rounded or regular discolored patches on the surface of the leaf. On these patches also are small black spore cases, but it is sometimes very difficult to see them with the unaided eye.

Many of the witches brooms are caused by fungi, usually associated with some insect. The most common is the one on the hackberry, which often covers entire trees with its unsightly deformities. They also occur on hickory and various conifers.

None of the fungi thus far considered do any serious injury to the trees, that is, they are seldom numerous enough to prove fatal to the tree, although in the case of ornamental trees they often defeat the purpose for which the tree was planted.

By far the most destructive plant enemies of forest trees, are those fungi which attack the wood, either while the tree is still standing or after it has been uprooted by the wind or felled by the woodman. The most destructive of these are the mushrooms, toadstools and shelf fungi.

The shelf fungi have numerous round pores on their under surface, and it is in these that the spores are formed. The ripe spores drop out and are blown about by the wind until they find lodgment in some crevice of some tree. If moisture is abundant the spore germinates and sends a threadlike mycelium into the tree. This spreads in every direction breaking down the woody tissue as it goes. When a tree is attacked thus near the ground it is usually weakened so that it soon breaks off and usually destroys several young, healthy trees. The mycelium may have been growing for several years, and the wood may be nearly ruined before the tell-tale shelf appears on the outside. When the shelf or fruiting body of the fungus appears it is time to cut the tree if it is to be used for economic purposes.

Many of the toadstools also attack living trees, usually causing serious injury and often killing the tree.

When a forest is properly managed there is little to fear from destructive fungi. Care should be taken in felling a tree not to tear the branches from neighboring trees, and everything should be done to promote a vigorous, hardy growth.

J. N. FRANK.

Agricultural Schools of Alabama.

We are hearing a great deal about agricultural education, agricultural high schools and so on, and it is interesting to note the rapid progress made in the

last few years along these lines of education.

Every state has its agricultural college and experiment station to help educate the farmer. Some have nature study and elementary agriculture in their elementary schools, while some few have agriculture taught in the high schools of the counties. Wherever the latter has been tried it has been found to fill a great need. Among the states that have established agricultural high schools the foremost are Alabama, Wisconsin, California and Missouri.

Alabama was the first state to take up this means of educating the rural community. In 1896 the State Legislature provided for the establishment of agricultural schools in each of the nine congressional districts of the state and appropriated \$2500 a year to each of these schools. They also receive additional help from local funds.

These schools have been a combination of elementary and high schools in which a general education has been given along with instruction in agriculture. Each school has a farm in connection on which simple field experiments have been conducted in order to supplement the theoretical with the practical side of farming. Of course a great number of students who attend these schools do not receive instruction in agriculture, but those who do constitute a large percentage of the 2000 boys and girls who annually attend.

The control of these schools has been largely local, with the result that there has been no very well defined plan for their development along agricultural lines, but as a better understanding of the requirements and advantages of systematic instruction in agriculture is acquired they will develop into very efficient agricultural high schools.

W.

DAIRY NOTES.

An O. S. U. Students' Auxiliary of the Ohio Dairymen's Association has been formed among the students of the dairy class. The organization has for its objects a closer friendship and acquaintance of its members, the gathering of knowledge regarding the different dairy sections of the state, and the general support of the Ohio Dairymen's Association.

The following officers have been elected: President, A. C. Beer, Vice-President, W. G. Rehl; Secretary, E. H. Russell, and Treasurer, A. B. Sill. Meetings are held weekly and are well attended.

A. C. Beer of this year's beginning class has contracted to operate a creamery at Stowe, Ohio, next season.

Two students will go to Illinois to work in cheese factories at the close of the term, and a number of others are negotiating for places in Ohio factories.

M. L. Hoyt, the inventor of the Simplex Separator, spent a couple of days at the University recently experimenting with his machine. The machine with a 35-pound bowl model demonstrated a capacity of 2000 pounds per hour in one of the tests and skimmed exceptionally close.

The exhibit of dairy machinery at the Dairymen's Association meeting was the finest that has ever been made in connection with these gatherings, both as regards the number of exhibitors and the apparatus displayed. It would seem too that these dealers are finding Ohio to be a very lucrative field of labor from the results of this gathering, one firm having done in the neighborhood of

\$8000 worth of business at this one meeting, while some others were not far below that figure in the value of their sales.

UNIVERSITY NEWS.

Otto E. Jennings, '03, who has been a fellow in botany in the University for the past year, has been appointed custodian of the botanical collection of the Carnegie Museum at Pittsburg, Pa., and has entered upon his duties.

Frank Ruhlen, who has been foreman of the University farm since 1898, has accepted the management of a large dairy farm near Washington C. H., O. Since 1902 Mr. Ruhlen has been Instructor in Zootechny and has assisted in the Animal Industry instructional work. His resignation takes effect March 1.

Six finished Hereford and Shorthorn steers were sold by the University farm recently. They were good animals and brought the top price for Columbus markets.

The members of the Junior and Senior classes of the College of Agriculture and the Domestic Science girls were most delightfully entertained by Professor and Mrs. Price at Townshend Hall on the evening of February 13. The members of the faculty and their wives were in the receiving line and aided in the entertainment of the guests. Various novel and interesting means of entertainment had been devised and the evening was most pleasantly spent.

C. B. Hoover, '03, who was doing graduate work in the University the beginning of the year, went to Cornell the beginning of the present semester to take up work there.

Modesto Quiroga of Argentine finished the work necessary for his degree by the close of the first term of this year and has also taken up graduate work at Cornell this semester.

The various instructors in the college have all been doing more or less institute work during the past month. Professor Price has attended quite a number of institutes.

The College of Agriculture will make an exhibit of its soil laboratory equipment at the St. Louis Exposition. The plan is to have a laboratory in operation throughout the period covered by the exposition and in this to combine the most important pieces of apparatus for soil investigations that have been developed in the United States. Mr. Miller is in charge of this feature of the Agricultural College and Experiment Station exhibit, and he is authority for the statement that Ohio will be very fully represented.

President Jordan of Leland Stanford Junior University delivered a lecture on "Agassiz," February 16, under the auspices of the Philosophical Club.

The basketball team has been doing good work so far this season. They have lost but one game with Ohio teams and one with Minnesota.

A track meet was held in the Gymnasium February 17 between the Sophomores and the rest of the University. The Sophomores carried off most of the prizes.

G. H. Inskeep and E. S. Poston have been compelled to leave school on account of illness.

ALUMNI NEWS.

D. W. Galehouse, ex-'01, who has for the past year been connected with the Bureau of Plant Industry, U. S. Department of Agriculture, has resigned his position and will engage in the real estate business in Columbus with a view to finishing his course later.

Wm. Gilmore, '99, is farming at Basil, Ohio, and is giving special attention to stock raising. Mr. Gilmore was married just before the holidays and he now says that "the future looks bright."

K. C. Egbert, '90, is superintendent of the Yainax Indian School at Yainax, Oregon, and is also engaged in the lumber business. He writes that he expects to be in Ohio soon. Mr. Egbert took his Master's degree at Cornell in 1901.

Lorenzo D. Fauver is engaged in stock raising near Ridgeville Corners, Ohio. He is specially interested in Delaine sheep and Cruikshank Shorthorns.

Geo. Florence is engaged in general farming with his father near Circleville, Ohio.

T. C. Gault is especially interested in the breeding of Holstein-Fresian cattle and is located at Fernwood, Ohio.

G. W. Gephart is practicing general farming at Miamisburg, and W. R. Everett is in the same business at Gnadenhutten.

D. A. Givens is in the lumber business at Culver, Minnesota, thirty miles north of Duluth.

Orrin W. Erven is engaged in general agriculture at Grand Rapids, Ohio.

C. C. Fauver, who lost his hand in the University corn shredder two years ago, is teaching at Ridgeville Corners, Ohio.

GENERAL AGRICULTURAL NEWS.

H. H. Hume, Horticulturist of the Florida Station, has accepted the position of Horticulturists in the North Carolina Station.

The building for the agricultural college on the Provincial Farm at Truro, Nova Scotia, is nearly completed. It is modern in every respect.

The Girls' Industrial College of Texas, which was opened last year, will make a special feature of horticulture and floriculture. New greenhouses have been built and a nursery established.

The course in agriculture at the Sheffield Scientific School has been discontinued owing to the retirement of Professor W. H. Brewer, who had charge of the work.

Among important agricultural bills and resolutions that are being or have been considered by Congress are the following:

A joint resolution to provide for the publication of 200,000 copies of the Special Report on the Diseases of Cattle, prepared by the Bureau of Animal Industry; a joint resolution providing for the printing of an additional 42,000 Year-books of the Department for supplying the students of agricultural colleges; a bill to increase the annual appropriation for agricultural experiment stations, for the purpose of paying the necessary expenses of conducting original researches or experiments bearing directly on the agricultural industry of the United States.

The Tennessee Agricultural College has this winter, given three special short courses for the farmers. One course consisted of cereal judging and practical feeding. It was so conducted as to give the farmers of the state an opportunity to learn the methods of selecting and improving cereals, and of feeding the live stock of the farm to the best advantage.

The stock feeding was done in the experimental barns and the farmers were given the opportunity of learning how to combine the different food stuffs and prepare rations for the different classes of live stock so as to secure the largest profit from their use.

A second course was one in stock judging and dairying. In this the farmers were shown the principles of stock judging and the proper methods of carrying on a dairy.

The third course was one in farm poultry. This was under the direction of T. E. Orr of Beaver, Pa., who is superintendent of the poultry at the St. Louis Exposition, and is Secretary of the American Poultry Association.

The University of Michigan has received from Arthur Hill of Saginaw, eighty acres of land just outside of Ann Arbor to serve as an experiment farm for the Forestry Department. The tract is called the "Saginaw Forest Farm," and is to serve as an object lesson in forestry. It is planned to provide for: (1) An arboretum of all useful forest trees suited to Michigan; (2) demonstration areas for seed bed and nursery work; (3) model plantations of forest trees; (4) special experiments in forestry.

Cornell University will receive \$200,000 from the estate of Frederick W. Guiteau. The money will be used as a

fund for the assistance of needy students and will be lent them without interest.

The Agricultural College of Columbia, Mo., will offer a thoroughly practical course in poultry farming during the week of February 22 to 27 inclusive. The important phases of profitable poultry culture: the care and management of fowls; the manipulation of incubators, and the production of fancy poultry will be carefully considered.

The instructor selected for the work is Mrs. Ida K. Tilson of West Salem, Wis., a graduate of Ripon College. She comes highly recommended from farmers' institute managers and agricultural college faculties where she has been employed in a similar capacity.

The Illinois Corn Growers and Cattle Breeders Convention recently held was pronounced a decided success. A very large number of farmers were present and much interest was shown. It was equivalent to years of ordinary advertising for the college and of much benefit to farmers.

The agricultural appropriation bill before Congress carries a total of \$5,711,240, which is an increase of \$233,000 over the amount appropriated last year.

A study of the adaptability of the various post and pole timber trees such as hardy catalpa and yellow locust in the different sections of Ohio is to be undertaken by the Experiment Station through the Agricultural Student Union. Trees will be sent to a certain number of farmers in the state for test plats of one-eighth to three-fourths of an acre in size. Information regarding this work can be obtained through L. H. Goddard, Washington C. H.

